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EXAMINER

WEBB, GREGORY E

ART UNIT	PAPER NUMBER
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1796

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/569,310

Applicant(s)

LALLIER ET AL.

Examiner

Gregory E. Webb

Art Unit

1796

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE ____ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) ____ is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☐ Claim(s) ____ is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

2. Claims 1-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Artuphel; Benoit (US20060052268).

Concerning the secondary butanol, butanol and the DMSO, Artuphel; Benoit teaches the following:

[0014] The compositions according to the invention advantageously comprise from 1 to 88% of fluorinated base, from 5 to 94% of DM, and from 5 to 70% of **DMSO** and/or of **secondary butanol**. The content of **DMSO** or of **secondary butanol** is advantageously at most equal to the content of DAA. Preferably, the compositions of the invention comprise from 5 to 80% of fluorinated base, from 15 to 85% of DM, and from 5 to 50% of **DMSO** and/or **secondary butanol**. (*emphasis added*)

Concerning the trans-1,2-dichloroethylene, Artuphel; Benoit teaches the following:

6. Composition according to claim 1, wherein said fluorinated base further comprises **trans-1,2-dichloroethylene**. (*emphasis added*)

Concerning the preferred fluorinated base, Artuphel; Benoit teaches the following:

7. Composition according to claim 5, wherein said hydrofluorocarbons are selected from the group **1,1,1,3,3-pentafluorobutane (HFC 365 mfc)**, **1,1,1,2,3,4,4,5,5,5-decafluoropentane (HFC 4310 mee)**, **1,1,1,2-tetrafluoroethane (HFC 134 a)**, **pentafluoroethane (HFC 125)**, **1,1,1-trifluoroethane (HFC 143 a)**, **difluoromethane (HFC 32)**, **1,1,1-difluoroethane (HFC 152 a)**, **1-fluoroethane (HFC 161)**, **1,1,1,2,3,3,3-heptafluoropropane (HFC 227 ea)**, **1,1,1,3,3,pentafluoropropane (HFC 245 fa)**, **octafluoropropane (HFC 218)**, **(perfluorobutyl)ethylene (C.sub.4H.sub.9CH.dbd.CH.sub.2)**, **1,1,2,2,3,4,5-heptafluorocyclopentane (C.sub.5H.sub.3F.sub.7)**, **perfluorohexylethylene (C.sub.6F.sub.13CHCH.sub.2)**, **tridecafluorohexane (C.sub.6F.sub.13H)** and **perfluoro(methylmorpholine) (PF 5052)**. (*emphasis added*)

Concerning the HFC 365 mfc, HFC 4310 mee and the HFC 227 ea, Artuphel; Benoit teaches the following:

[0020] Preferably, mixtures of **HFC 365 mfc** and **HFC 4310 mee** are used as fluorinated base. Advantageously, these mixtures comprise from 5 to 95% of HFC 365 mfc and from 5 to 95% of HC 4310 mee. These mixtures can optionally contain **HFC 227 ea**. A preferred mixture consists of 80% of HFC 365 mfc and 20% of HFC 4310 mee. Another preferred mixture consists of 50% of HFC 365 mfc and 50% of HFC 4310 mee. (*emphasis added*)

Concerning the methylheptafluoropropyl ether, Artuphel; Benoit teaches the following:

9. Composition according to claim 4, wherein said one or more halogenated compounds are selected from the group

**methylheptafluoropropyl ether (C.sub.3F.sub.7OCH.sub.3),
methylnonafluorobutyl ether (C.sub.4F.sub.9OCH.sub.3),
ethylnonafluorobutyl ether (C.sub.4F.sub.9OC.sub.2H.sub.5) and
perfluoropyran (C.sub.5F.sub.10O).** (*emphasis added*)

Concerning the defluxing, Artuphel; Benoit teaches the following:

[0053] The compositions M4 and M6 (table 4) were tested. TABLE-US-00004 TABLE 4 Fluorinated BASE HFC HFC 365 4310 Secondary Composition mfc mee DAA DMSO butanol M4 8 32 25 35 M5 4 26 23.33 23.33 23.33 The composition M4 gave excellent **defluxing** results for electronic boards with synthetic colophony. The composition M5 made it possible to remove difficult solder fluxes called "no clean". (*emphasis added*)

3. Claims 1-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Sekiya (US6403846).

Concerning the fluorinated base, Sekiya teaches the following:

The fluorinated hydrocarbons mentioned above are not particularly limited, and may be mainly composed of carbon, hydrogen and fluorine and contain oxygen atoms or unsaturated bonds. Of these, those having boiling points of 25.degree. C. or more are preferable. As such **fluorinated** hydrocarbons, for example, **pentafluoropropane, hexafluorobutane, decafluoropentane, hexafluorocyclopentane, octafluorocyclopentane, perfluoropropylmethyl ether, perfluorobutylmethyl ether, perfluorobutylethyl ether, hexafluorocyclopentane, heptafluorocyclopentane, octafluorocyclopentene and the like can be used. Further, hexafluorocyclopentane, octafluorocyclopentane, hexafluorocyclopentene and the like having cyclic structures and the appropriate boiling points are preferable.** (*emphasis added*)

Concerning the secondary butanol, Sekiya teaches the following:

The alcohols mentioned above are not particularly limited either. For example, methanol, ethanol, isopropanol, n-propanol, n-butanol, **s-butanol**, t-butanol, n-pentanol, isopentanol, n-hexanol, isohexanol, 2-ethylhexanol, n-octanol and the like are mentioned. Of these, those having 5 or less carbon atoms are preferable, and those having 1 to 4 carbon atoms are especially preferable. (*emphasis added*)

Concerning the DMSO, Sekiya teaches the following:

And in the process of this invention, it is also important that the substrate starting material is mixed with the high-polarity compound. As the high-polarity compound, there are water, alcohols, polyhydric alcohols, monoethers of these polyhydric alcohols, amides, sulfoxides and the like. Specific examples include, for example, alcohols such as methyl alcohol, ethyl alcohol, n-propyl alcohol, n-butyl alcohol, n-pentyl alcohol and the like, and their structural isomers; polyhydric alcohols such as ethylene glycol, glycerol, diethylene glycol, diethylene glycol monomethyl ether and the like, and monoethers of these polyhydric alcohols; amides such as N,N-dimethylacetamide, N,N-dimethylformamide and the like; sulfoxides such as **dimethyl sulfoxide** and the like; and so forth. The mixing proportion of these high-polarity compounds is not particularly limited, and they may be used as additives or solvents. Further, these high-polarity compounds may be used either alone or in mixtures of two or more. (*emphasis added*)

Concerning the dichloroethylene, Sekiya teaches the following:

The chlorinated hydrocarbons mentioned above are not particularly limited. For example, methylene chloride, dichloroethane, **dichloroethylene**, trichloroethylene, perchloroethylene and the like are mentioned. (*emphasis added*)

Concerning the defluxing, Sekiya teaches the following:

A **flux** (PO-F-1010S made by Senju Metal Industry Co., Ltd.) was coated on the whole surface of a printed substrate (30 mm.times.30 mm.times.0.2 mm in thickness) made of a polyimide resin, and dried at room temperature. This was dipped in a detergent composition of 80 parts by weight of a fluorinated saturated hydrocarbon of heptafluorocyclopentane: hexafluorocyclopentane=0:40 (molar ratio) and 20 parts by weight of ethanol at 30.degree. C. for 3 minutes. The condition of removing the **flux** was visually observed. Consequently, it was identified that the **flux** was completely removed. (*emphasis added*)

4. Claims 1-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Yamada (US6312759).

Concerning the fluorinated base, Yamada teaches the following:

With no specific limitation, other fluorinated hydrocarbons may principally be composed of carbon, hydrogen and fluorine and may satisfactorily contain oxygen atom or unsaturated bonds. Among them, fluorinated hydrocarbons at a boiling point of 25.degree. C. or more are preferable and include for example **pentafluoropropane, hexafluorobutane, decafluoropentane, hexafluorocyclopentane,**

octafluorocyclopentane, perfluoropropyl methyl ether, perfluorobutyl methyl ether, perfluorobutyl ethyl ether, hexafluorocyclopentene, heptafluorocyclopentene and octafluorocyclopentene. Furthermore, preference is given to hexafluorocyclopentane, octafluorocyclopentane and hexafluorocyclopentene, because of the cyclic structures and the appropriate boiling points. (*emphasis added*)

Concerning the secondary butanol, Yamada teaches the following:

When the inventive cyclic trihydrofluorocarbon is 1,1,2,2,3,3,4-heptafluorocyclopentane, for example, an azeotropic composition is formed together with hydrocarbons such as n-octane, 2,2,4-trimethylpentane, and n-heptane; alcohols such as methanol, ethanol, isopropanol, 1-butanol and **2-butanol**; chlorinated hydrocarbons such as trichloroethylene and tetrachloroethylene; and other fluorinated hydrocarbons such as ethyl perfluorobutyl ether and perfluorooctane. (*emphasis added*)

Concerning the DMSO, Yamada teaches the following:

The alkali treatment in accordance with the invention may be carried out in two layers of water and the dihydrofluorocarbon, satisfactorily, but a part or the entirety thereof may be substituted with a polar solvent. The polar solvent includes for example alcohols such as methanol, ethanol and isopropanol; glycols such as ethylene glycol; glycol ethers such as ethylene glycol monomethyl ether; sulfoxides such as **dimethyl sulfoxide**; sulfolanones; amides such as dimethylformamide, dimethylacetamide and N-methylpyrrolidone; and ureas such as dimethylimidazolidinone. (*emphasis added*)

Concerning the trans-1,2-dichloroethylene, Yamada teaches the following:

More specifically, the azeotropic temperature of the azeotropic composition of 1,1,2,2,3,3,4-heptafluorocyclopentane and n-octane is 79.degree. C., wherein the composition ratio of n-octane is 7.8% by weight. The azeotropic temperature of the azeotropic composition of 1,1,2,2,3,3,4-heptafluorocyclopentane and 2,2,4-trimethylpentane is 75.degree. C., wherein the composition ratio of 2,2,4-trimethylpentane is 21.2% by weight. The azeotropic temperature of the azeotropic composition of 1,1,2,2,3,3,4-heptafluorocyclopentane and n-heptane is 73.degree. C., wherein the composition ratio of n-heptane is 12.8% by weight. The azeotropic temperature of the azeotropic composition of 1,1,2,2,3,3,4-heptafluorocyclopentane and methanol is 60.degree. C., wherein the composition ratio of methanol is 23.1% by weight. The azeotropic temperature of the azeotropic composition of 1,1,2,2,3,3,4-heptafluorocyclopentane and ethanol is 69.degree. C., wherein the composition ratio of ethanol is 18.4% by weight. The azeotropic

temperature of the azeotropic composition of 1,1,2,2,3,3,4-heptafluorocyclopentane and isopropanol is 73.degree. C., wherein the composition ratio of isopropanol is 19.6% by weight. The azeotropic temperature of the azeotropic composition of 1,1,2,2,3,3,4-heptafluorocyclopentane and 1-butanol is 80.degree. C., wherein the composition ratio of 1-butanol is 2.3% by weight. The azeotropic temperature of the azeotropic composition of 1,1,2,2,3,3,4-heptafluorocyclopentane and 2-butanol is 79.degree. C., wherein the composition ratio of 2-butanol is 8.4% by weight. The azeotropic temperature of the azeotropic composition of 1,1,2,2,3,3,4-heptafluorocyclopentane and trichloroethylene is 73.degree. C., wherein the composition ratio of trichloroethylene is 21.3% by weight. The azeotropic temperature of the azeotropic composition of 1,1,2,2,3,3,4-heptafluorocyclopentane and tetrachloroethylene is 79.degree. C., wherein the composition ratio of tetrachloroethylene is 7.3% by weight. The azeotropic temperature of the azeotropic composition of 1,1,2,2,3,3,4-heptafluorocyclopentane and **trans-1,2-dichloroethylene** is 46.degree. C., wherein the composition ratio of trans-1,2,-dichloroethylene is 84% by weight. The azeotropic temperature of the azeotropic composition of 1,1,2,2,3,3,4-heptafluorocyclopentane and ethyl perfluorobutyl ether is 74.degree. C., wherein the composition ratio of ethyl perfluorobutyl ether is 75.3% by weight. The azeotropic temperature of the azeotropic composition of 1,1,2,2,3,3,4-heptafluorocyclopentane and perfluorooctane is 78.degree. C., wherein the composition ratio of perfluorooctane is 34.2% by weight. (*emphasis added*)

Concerning the preferred fluorinated base, Yamada teaches the following:

In the same manner as in Reference Example 2 except for the use of nonafluoropentane synthetically produced in Example 2, instead of **1,1,1,2,3,4,4,5,5,5-decafluoropentane**, experiments were carried out. Then, the decomposition ratio of nonafluoropentane was 18%. (*emphasis added*)

Concerning the HFC 4310 mee, Yamada teaches the following:

In the same manner as in Example 15 except for the use of 1,1,2,2,3,3,4-heptafluorocyclopentane with addition of 10% by weight of **2,3-dihydrodecafluoropentane (HFC-43-10 mee**, manufactured by Dupont, Co.) as the liquid medium for a polymer-containing solution, a polymer film was formed on the hard disk surface. The results in Table 7 show that that the hard disk treated with the fluoropolymer-containing solution was at a small variation of the thickness of the fluoropolymer film, with no observed wrinkle on the surface. Additionally, the results in Table 8 indicate that the hard disk treated with the fluoropolymer-containing solution had a small

initial frictional coefficient, while the CCS number thereof indicates sufficient durability. (*emphasis added*)

5. Claims 1-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Kiyohara (US5686557).
Concerning the fluorinated base, trans-1,2-dichloroethylene and the dichloroethylene, Kiyohara teaches the following:

The halogen solvents include, but are not limited to, **fluorobenzene, o-fluorotoluene, m-fluorotoluene, p-fluorotoluene, hexafluorobenzene, hexachloroethane, 1,1,2,2-tetrachloro difluoroethane, 1,2-dibromo tetrafluoroethane**, chloroethane, 1-chloropropane, 2-chloropropane, 1-chlorobutane, 2-chlorobutane, 1-chloro-2-methylpropane, chloro-2-methylpropane, 1-chloropentane, chlorobenzene, 1-chloronaphthalene, dichloromethane, chloroform, carbon tetrachloride, 1,1-dichloroethane, 1,2-dichloroethane, 1,1,1-trichloroethane, 1,1,2,2-tetrachloroethane, pentachloroethane, o-dichlorobenzene, m-dichlorobenzene, 3-chloropropene, 1,1-dichloroethylene, cis-1,2-dichloroethylene, **trans-1,2-dichloroethylene**, trichloroethylene, tetrachloroethylene, bromobenzene, bromoform, 1,2-dibromoethane, 1,1,2,2-tetrabromoethane, and the like. (*emphasis added*)

Concerning the secondary butanol, Kiyohara teaches the following:

Alcohol solvents (B) include, but are not limited to, methanol, ethanol, propanol, isopropanol, butanol, **sec-butanon**, isobutanol, 1-pentanol, 2-pentanol, 3-pentanol, 2-methyl-1-butanol, 3-methyl-1-butanol, 2-methyl-2-butanol, 3-methyl-2-butanol, 2,2-dimethyl-1-propanol, cyclohexanol, 1-hexanol, 2-methyl-1-pentanol, 4-methyl-2-pentanol, 2-ethyl-1-butanol, 1-octanol, 2-ethyl-1-hexanol, benzylalcohol, m-creosol, 2-penten-1-ol, cis-2-buten-1-ol, propargyl alcohol, ethylene glycol, propylene glycol, trimethylene glycol, 1,3-butanediol, glycerin, methyl cellosolve, ethyl cellosolve, butyl cellosolve, diethylene glycol, triethylene glycol, 2-(2-methoxyethoxy) ethanol, and the like. (*emphasis added*)

Concerning the DMSO, Kiyohara teaches the following:

The organic solvents include cyclohexanone; ketones such as acetone, methyl ethyl ketone, and methyl isobutyl ketone; cellosolves such as methyl cellosolve, methyl cellosolve acetate, ethyl cellosolve, ethyl cellosolve acetate, butyl cellosolve, and butyl cellosolve acetate; esters such as ethyl acetate, butyl acetate, isoamyl acetate, and methyl lactate; alcohols such as methanol, ethanol, propanol, butanol, pentanol, and octanol; N-methyl-2-pyrrolidone; N,N-dimethyl acetamide; N,N-

dimethylformamide; **dimethylsulfoxide**; 1,4-dioxane; tetrahydrofuran; and combinations thereof. (*emphasis added*)

6. Claims 1-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Tsuzaki (US5989456).

Concerning the fluorinated base, Tsuzaki teaches the following:

2. The solvent composition according to claim 1, wherein the **dichloropentafluoropropane** is at least one member selected from the group consisting of **3,3-dichloro-1,1,1,2,2-pentafluoropropane** and **1,3-dichloro-1,1,2,2,3-pentafluoropropane**. (*emphasis added*)

Concerning the secondary butanol, Tsuzaki teaches the following:

Alcohols such as methanol, ethanol, 1-propanol, 2-propanol, 1-butanol, **2-butanol**, isobutanol or t-butanol. (*emphasis added*)

Concerning the trans-1,2-dichloroethylene, Tsuzaki teaches the following:

Chlorinated hydrocarbons, such as dichloromethane, cis-1,2-dichloroethylene, **trans-1,2-dichloroethylene**, trichloroethylene and tetrachloroethylene. (*emphasis added*)

Concerning the preferred fluorinated base, Tsuzaki teaches the following:

Hydrochlorofluorocarbons such as 2,2-dichloro-**1,1,1-trifluoroethane** and **1,1-dichloro-1-fluoroethane**. (*emphasis added*)

Concerning the defluxing, Tsuzaki teaches the following:

R225 or a solvent mixture composition of R225 with a solvent soluble in R225, is used for various degreasing and **defluxing**. However, R225 adversely affects an acrylic resin, and could not be used for cleaning a part containing this resin. (*emphasis added*)

7. Claims 1-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Hanada (US7053035).

Concerning the fluorinated base, Hanada teaches the following:

In the present invention, the **fluorinated** solvent containing no chlorine atom in its molecule may, for example, be HFC or HFE. HFC is a compound comprising **fluorine** atoms, hydrogen atoms and carbon atoms. HFE is a compound comprising **fluorine** atoms, hydrogen atoms, carbon atoms and an ether group (--O--). As HFC or HFE, a non-flammable compound is preferred. If it is non-flammable, a mixture

containing such a compound can be made non-flammable, such being preferred. (*emphasis added*)

Concerning the secondary butanol, Hanada teaches the following:

The alcohols are preferably C.sub.1-16 linear or cyclic alcohols, which include, for example, methyl alcohol, ethyl alcohol, 1-propanol, 2-propanol, 1-butanol, **2-butanol**, 2-methyl-1-propanol, 2-methyl-2-propanol, 1-pentanol, 2-pentanol, 3-pentanol, 2-methyl-1-butanol, 3-methyl-1-butanol, 2-methyl-2-butanol, 3-methyl-2-butanol, 2,2-dimethyl-1-propanol, 1-hexanol, 2-methyl-1-pentanol, 4-methyl-2-pentanol, 2-ethyl-1-butanol, 1-heptanol, 2-heptanol, 3-heptanol, 1-octanol, 2-octanol, 2-ethyl-1-hexanol, 1-nonanol, 3,5,5-trimethyl-1-hexanol, 1-decanol, 1-undecanol, 1-dodecanol, allyl alcohol, propargyl alcohol, benzyl alcohol, cyclohexanol, 1-methylcyclohexanol, 2-methylcyclohexanol, 3-methylcyclohexanol, 4-methylcyclohexanol, .alpha.-terpineol, 2,6-dimethyl-4-heptanol, nonyl alcohol, and tetradecyl alcohol. (*emphasis added*)

Concerning the trans-1,2-dichloroethylene, Hanada teaches the following:

The halogenated hydrocarbons are preferably C.sub.1-6 chlorinated or chlorofluorinated hydrocarbons, which include, for example, dichloromethane, 1,1-dichloroethane, 1,2-dichloroethane, 1,1,2-trichloroethane, 1,1,1,2-tetrachloroethane, 1,1,2,2-tetrachloroethane, pentachloroethane, 1,1-**dichloroethylene**, cis-1,2-**dichloroethylene**, **trans-1,2-dichloroethylene**, trichloroethylene, tetrachloroethylene, 1,2-dichloropropane, dichloropentafluoropropane and dichlorofluoroethane. (*emphasis added*)

Concerning the preferred fluorinated base, Hanada teaches the following:

HFC may specifically be linear HFC such as 1,1,1,2,2,3,4,5,5,5-decafluoropentane, 1,1,1,2,2,3,3,4,4,5,5,6,6-**tridecafluorohexane**, **1,1,1,3,3-pentafluorobutane**, or 1,1,1,2,2,3,3,4,4-nonafluorohexane, or cyclic HFC such as 1,1,2,2,3,3,4-heptafluorocyclopentane. HFC in the present invention is preferably HFC having from 4 to 10 carbon atoms. (*emphasis added*)

Concerning the defluxing, Hanada teaches the following:

The soils adhered to the article may, for example, be soils which are used for the manufacture of the article or components constituting the article and which must be finally removed, or soils which are adhered during the use of the article. The substance constituting the soils may, for example, be an oil such as a grease, a mineral oil, a wax or an oil-based ink, a **flux**, or a dust. (*emphasis added*)

8. Claims 1-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Kitamura (US6395699).

Concerning the fluorinated base, Kitamura teaches the following:

In the present invention, R225 represents one or more of dichloropenta**fluoro**propanes represented by the molecular formula C.sub.3 HCl.sub.2 F.sub.5. R225 is preferably at least one member selected from the group consisting of R225ca and R225cb. Particularly preferred R225 is a mixture of R225ca and R225cb. The blend ratio is preferably R225ca/R225cb=1 to 99 wt %/1 to 99 wt %, more preferably R225ca/R225cb=40 to 75 wt %/25 to 60 wt %. (*emphasis added*)

Concerning the secondary butanol, Kitamura teaches the following:

Alcohols such as methanol, ethanol, 1-propanol, 2-propanol, 1-butanol, **2-butanol**, isobutanol, and t-butanol. (*emphasis added*)

Concerning the trans-1,2-dichloroethylene, Kitamura teaches the following:

(b) 27 to 32 wt. % of **trans-1,2-dichloroethylene**; and (*emphasis added*)

Concerning the preferred fluorinated base, Kitamura teaches the following:

Hydrochlorofluorocarbons such as 2,2-dichloro-**1,1,1-trifluoroethane**, and 1,1-dichloro-1-flouroethane. (*emphasis added*)

9. Claims 1-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Behr (US6552090).

Concerning the butanol, trans-1,2-dichloroethylene and the preferred fluorinated base, Behr teaches the following:

A co-solvent can be included in the composition to modify or enhance the physical or chemical properties of the composition, including solvency and flash point, for a particular use. Useful co-solvents include alcohols, ethers, alkanes including cycloalkanes, alkenes, perfluorocarbons, perfluorinated tertiary amines, perfluoroethers, esters, ketones, aromatics, siloxanes, hydrochlorocarbons, hydrochlorofluorocarbons, and hydrofluorocarbons. Representative specifically useful examples of co-solvents which can be used in combination with the ether within a cleaning composition include methanol, ethanol, isopropanol, t-butyl alcohol, **isobutyl alcohol**, methyl t-butyl ether, methyl t-amyl ether, 1,2-dimethoxyethane, cyclohexane, 2,2,4-trimethylpentane, n-decane, terpenes (e.g., α -pinene, camphene, and limonene), **trans-1,2-dichloroethylene**, methylcyclopentane, decalin, methyl decanoate, t-butyl acetate, ethyl acetate, diethyl phthalate, 2-butanone, methyl isobutyl

ketone, toluene, p-chlorobenzotrifluoride, trifluorotoluene, hexamethyl disiloxane, octamethyl trisiloxane, perfluorohexane, perfluoroheptane, perfluorooctane, perfluorotributylamine, perfluoro-N-methyl morpholine, perfluoro-2-butyl oxacyclopentane, methylene chloride, chlorocyclohexane, 1-chlorobutane, **1,1-dichloro-1-fluoroethane**, 1,1,1-trifluoro-2,2-dichloroethane, 1,1,1,2,2-pentafluoro-3,3-dichloropropane, 1,1,2,2,3-pentafluoro-1,3-dichloropropane, 2,3-dihydroperfluoropentane, 1,1,1,2,2,4-hexafluorobutane, 1-trifluoromethyl-1,2,2-trifluorocyclobutane, 3-methyl-1,1,2,2-tetrafluorocyclobutane, 1-hydropentadecafluoroheptane, 1,3-bis(trifluoromethyl)benzene, 1,4-bis(trifluoromethyl)benzene, and bromopropane. (*emphasis added*)

Concerning the DMSO, Behr teaches the following:

Suitable anhydrous, polar, aprotic solvents for use in the above reaction schemes include acyclic ethers such as diethyl ether, ethylene glycol dimethyl ether, and diethylene glycol dimethyl ether carboxylic acid esters such as methyl formate, ethyl formate, methyl acetate, diethyl carbonate, propylene carbonate, and ethylene carbonate; alkyl nitriles such as acetonitrile; alkyl amides such as N,N-dimethylformamide, N,N-diethylformamide, and N-methylpyrrolidone; alkyl sulfoxides such as **dimethyl sulfoxide**; alkyl sulfones such as dimethylsulfone, tetramethylene sulfone, and other sulfolanes; oxazolidones such as N-methyl-2-oxazolidone; and mixtures thereof. (*emphasis added*)

Concerning the defluxing, Behr teaches the following:

The cleaning process of the invention can be accomplished by contacting a contaminated substrate with the above-described ether or a composition comprising the ether, to disperse, dissolve, or otherwise displace contaminants. As used herein, the term "contaminant" generally refers to any matter contacting a substrate, that can be desirously displaced from the substrate, at least in part, by contact with one or more of the above-identified ethers or a composition containing such ether. For example, contaminants generally include materials such as light hydrocarbon substances; higher molecular weight hydrocarbon substances such as mineral oils and greases; fluorocarbon substances including perfluoropolyethers, bromotrifluoroethylene oligomers (gyroscope fluids), chlorotrifluoroethylene oligomers (hydraulic fluids, lubricants); silicone oils and greases; **solder fluxes**; particulates; soils, substances, or materials that can accumulate on leather, silk, fabrics as prepared into clothes, and other fiber and textile substrate materials; and other such substances. (*emphasis added*)

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gregory E. Webb whose telephone number is 571-272-1325. The examiner can normally be reached on 9:00-17:30 (m-f).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Harold Pyon can be reached on 571-272-1498. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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1/2/08

gew